Space Weather Highlights **SWPC PRF 2245**
03 September - 09 September 2018 **10 September 2018**

Solar activity was at very low levels this period. Region 2721 (N10, L=286 class/area Bxo/010 on 09 Sep) emerged near center disk on 08 Sep. This small region exhibited slight growth early on 09 Sep, but was showing signs of decay as of this report and remained inactive.

On 09 Sep, a prominence eruption was observed off the SW limb, beginning at 09/0815 UTC in SDO/AIA 304 imagery and at 09/0824 UTC in 171 imagery. While this event appears to be directed well south and west of the Sun-Earth line, significant gaps in SOHO coronagraph imagery data made analysis nearly impossible.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reach high levels on 03 - 08 Sep, then decreased to moderate levels on 09 Sep. A peak flux of 12,435 pfu was observed on 03/2035 UTC.

Geomagnetic field activity was at quiet to unsettled levels from 03 - 09 Sep, with an isolated period of active conditions on 05 Sep, likely due to a negative polarity coronal hole. Solar wind speeds began the period near 325 km/s, increased to over 500 km/s on 05 Sep and 07 Sep, and ended the period near 400 km/s. Total field strength averaged near 5 nT, and saw a peak of 11 nT on 07 Sep. The Bz component was variable through the period and saw a maximum southward deflection of -6 nT.

Space Weather Outlook
10 September - 06 October 2018

Solar activity is expected to be at low levels throughout the outlook period, with a slight chance for C-class flare activity.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at moderate to high levels through period. Moderate levels are expected from 10 - 12 Sep and again from 29 Sep - 06 Oct. High levels are expected from 13 - 28 Sep.

Geomagnetic field activity is expected to be at quiet to active levels on 10 Sep. Conditions are then likely reach G2 (Moderate) geomagnetic storm levels on 11 Sep due to a positive polarity coronal hole high speed stream (CH HSS). G1 (Minor) geomagnetic storm levels are also likely on 12 Sep as CH HSS effects persist. Active levels are expected on 13, 14, and 22 Sep from the influence of recurrent CH HSSs. Field activity is expected to be at quiet to unsettled levels throughout the remainder of the outlook period.

Daily Solar Data

Date	Radio Flux 10.7cm	Sun spot No.	Sunspot Area (10^{-6} hemi.)	X-ray Background Flux	Flares						
					X-ray			Optical			
					C	M	X	S	1	2	3	4
03 September	68	0	0	A0.0	0	0	0	0	0	0	0	0
04 September	68	0	0	A0.0	0	0	0	0	0	0	0	0
05 September	68	0	0	A0.0	0	0	0	0	0	0	0	0
06 September	67	0	0	A0.0	0	0	0	0	0	0	0	0
07 September	68	0	0	A0.0	0	0	0	0	0	0	0	0
08 September	69	16	10	A0.0	0	0	0	0	0	0	0	0
09 September	68	12	10	A0.0	0	0	0	0	0	0	0	0

Daily Particle Data

Date	Proton Fluence (protons/cm ^{2} -day -sr)			Electron Fluence (electrons/cm^2 -day -sr)	
	>1 MeV	>10 MeV	>100 MeV	>0.6 MeV	>2MeV	>4 MeV
03 September		2.3e+06	1.8e+04	3.7e+03	4.4e+08	
04 September		2.1e+06	1.7e+04	3.4e+03	1.1e+08	
05 September		6.2e+05	1.7e+04	3.6e+03	2.5e+07	
06 September		8.8e+05	1.7e+04	3.6e+03	5.1e+07	
07 September		6.0e+05	1.7e+04	3.5e+03	3.8e+07	
08 September		7.5e+05	1.7e+04	3.5e+03	4.4e+07	
09 September		7.5e+05	1.7e+04	3.7e+03	3.5e+07	

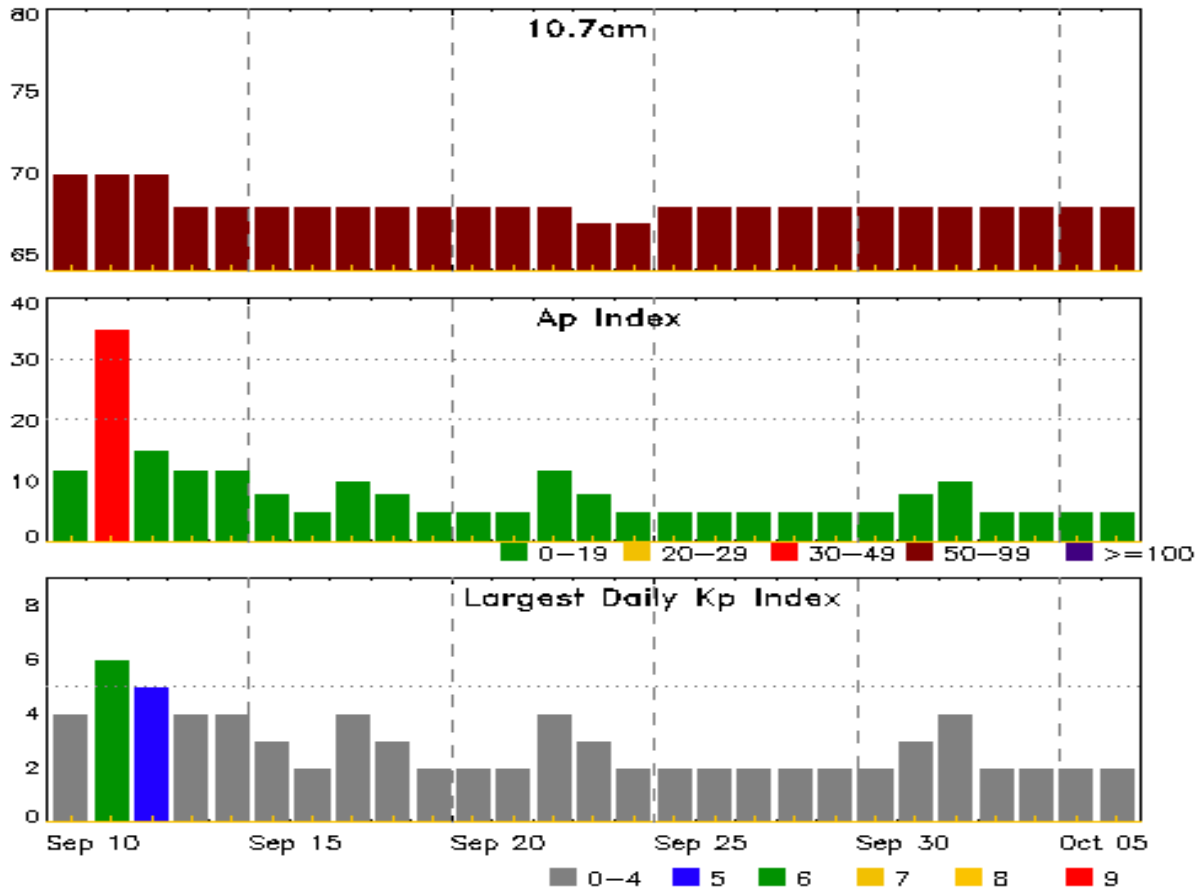
Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
03 September	4	1-2-0-1-2-2-1-1	3	2-2-0-1-0-2-0-0	5	2-2-1-1-1-1-1-1
04 September	9	2-3-3-1-2-1-2-3	7	1-3-3-2-1-1-1-1	9	2-3-3-1-1-2-2-3
05 September	9	3-2-2-2-3-2-2-1	20	2-2-1-6-4-4-1-1	11	4-3-2-3-3-2-2-1
06 September	5	2-1-2-1-1-1-1-2	7	1-1-3-2-3-2-1-0	6	2-1-2-1-1-1-1-2
07 September	5	3-2-0-1-2-2-1-0	4	1-1-1-2-2-2-0-0	5	2-2-1-1-1-1-1-1
08 September	5	0-1-2-2-2-1-1-2	2	1-0-1-0-1-0-0-1	5	1-1-3-1-1-1-1-2
09 September	6	1-1-2-2-2-1-2-2	4	0-1-2-0-1-1-2-2	7	2-2-1-1-2-1-2-3

Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
03 Sep 0946	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	18/1410
04 Sep 1706	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	18/1410
05 Sep 0208	WARNING: Geomagnetic K = 4	05/0210 - 0600
05 Sep 0239	ALERT: Geomagnetic K = 4	05/0239
05 Sep 1527	WARNING: Geomagnetic K = 4	05/1526 - 2100
06 Sep 1839	ALERT: Electron 2MeV Integral Flux >= 1000pfu	06/1815
08 Sep 1812	ALERT: Electron 2MeV Integral Flux >= 1000pfu	08/1750
08 Sep 2127	WATCH: Geomagnetic Storm Category G1 predicted	
09 Sep 1953	WATCH: Geomagnetic Storm Category G1 predicted	
09 Sep 2030	WATCH: Geomagnetic Storm Category G2 predicted	

Twenty-seven Day Outlook



Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index	Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index
10 Sep	70	12	4	24 Sep	67	5	2
11	70	35	6	25	68	5	2
12	70	15	5	26	68	5	2
13	68	12	4	27	68	5	2
14	68	12	4	28	68	5	2
15	68	8	3	29	68	5	2
16	68	5	2	30	68	5	2
17	68	10	4	01 Oct	68	8	3
18	68	8	3	02	68	10	4
19	68	5	2	03	68	5	2
20	68	5	2	04	68	5	2
21	68	5	2	05	68	5	2
22	68	12	4	06	68	5	2
23	67	8	3				

Energetic Events

	Time			X-ray		Optical Information			Peak Radio Flux		Sweep Freq Intensity	
Date	Begin	Max	Half Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	245	2695	II	IV

No Events Observed

Flare List

	Time				Optical		
Date	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
06 Sep	0801	0801	0801	A2.0			

Region Summary

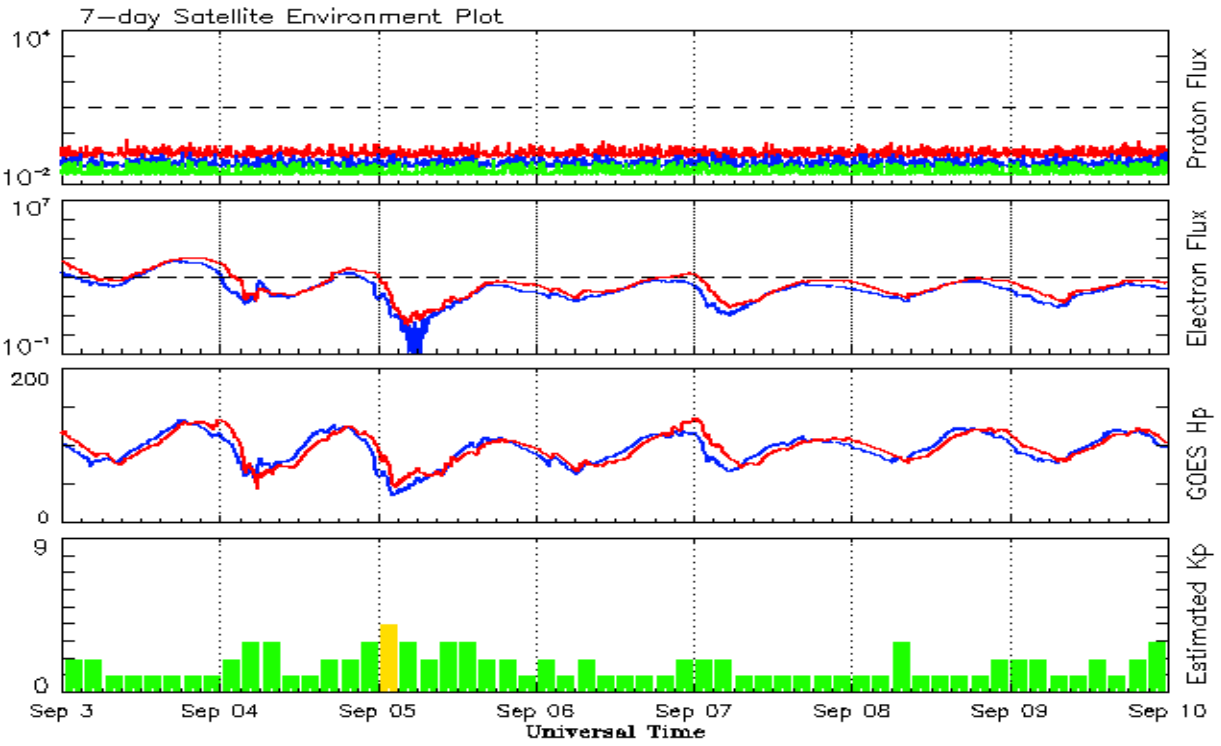
	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
		Region 2721													
08 Sep	N09W15	286	10	3	Bxo	6	B								
09 Sep	N10W28	286	10	3	Bxo	2	B								
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 286

Recent Solar Indices (preliminary)
Observed monthly mean values

	Sunspot Numbers					Radio Flux		Geomagnetic	
	Observed values		Ratio	Smooth values		Penticton	Smooth	Planetary	Smooth
Month	SEC	RI	RI/SEC	SEC	RI	10.7 cm	Value	Ap	Value
				2016					
September	37.4	26.8	0.72	32.1	19.9	87.8	83.7	16	11.3
October	30.0	20.0	0.67	31.1	18.9	86.1	82.5	16	11.6
November	22.4	12.8	0.57	29.4	17.9	78.7	81.1	10	11.6
December	17.6	11.1	0.64	28.1	17.1	75.1	80.0	10	11.4
				2017					
January	28.1	15.7	0.55	27.3	16.7	77.4	79.4	10	11.3
February	22.0	15.8	0.71	25.5	15.9	76.9	78.7	10	11.3
March	25.4	10.6	0.42	24.6	15.4	74.6	78.6	15	11.5
April	30.4	19.4	0.64	24.3	14.9	80.9	78.4	13	11.5
May	18.1	11.3	0.62	23.1	14.0	73.5	77.7	9	11.3
June	18.0	11.5	0.64	22.0	13.3	74.8	77.3	7	11.3
July	18.8	10.7	0.59	20.8	12.6	77.7	76.8	9	11.0
August	25.0	19.6	0.80	19.7	11.8	77.9	76.3	12	10.7
September	42.2	26.2	0.62	18.6	11.0	92.0	75.9	19	10.3
October	16.0	7.9	0.49	16.8	10.0	76.4	75.1	11	9.8
November	7.7	3.4	0.44	15.7	9.2	72.1	74.6	11	9.5
December	7.6	4.9	0.64	15.7	9.1	71.5	74.4	8	9.4
				2018					
January	7.8	4.1	0.51	15.0	8.6	70.0	74.0	6	9.3
February	16.0	6.4	0.40	13.7	7.6	72.0	73.3	7	9.1
March	6.0	1.5	0.25			68.4		8	
April	7.0	5.3	0.76			70.0		7	
May	15.0	7.9	0.53			70.9		8	
June	19.7	9.5	0.48			72.5		7	
July	1.3	1.0	0.77			69.7		6	
August	10.0	5.3	0.53			69.1		10	

Note: Values are final except for the most recent 6 months which are considered preliminary. Cycle 24 started in Dec 2008 with an RI=1.7.



Weekly Geosynchronous Satellite Environment Summary
Week Beginning 03 September 2018

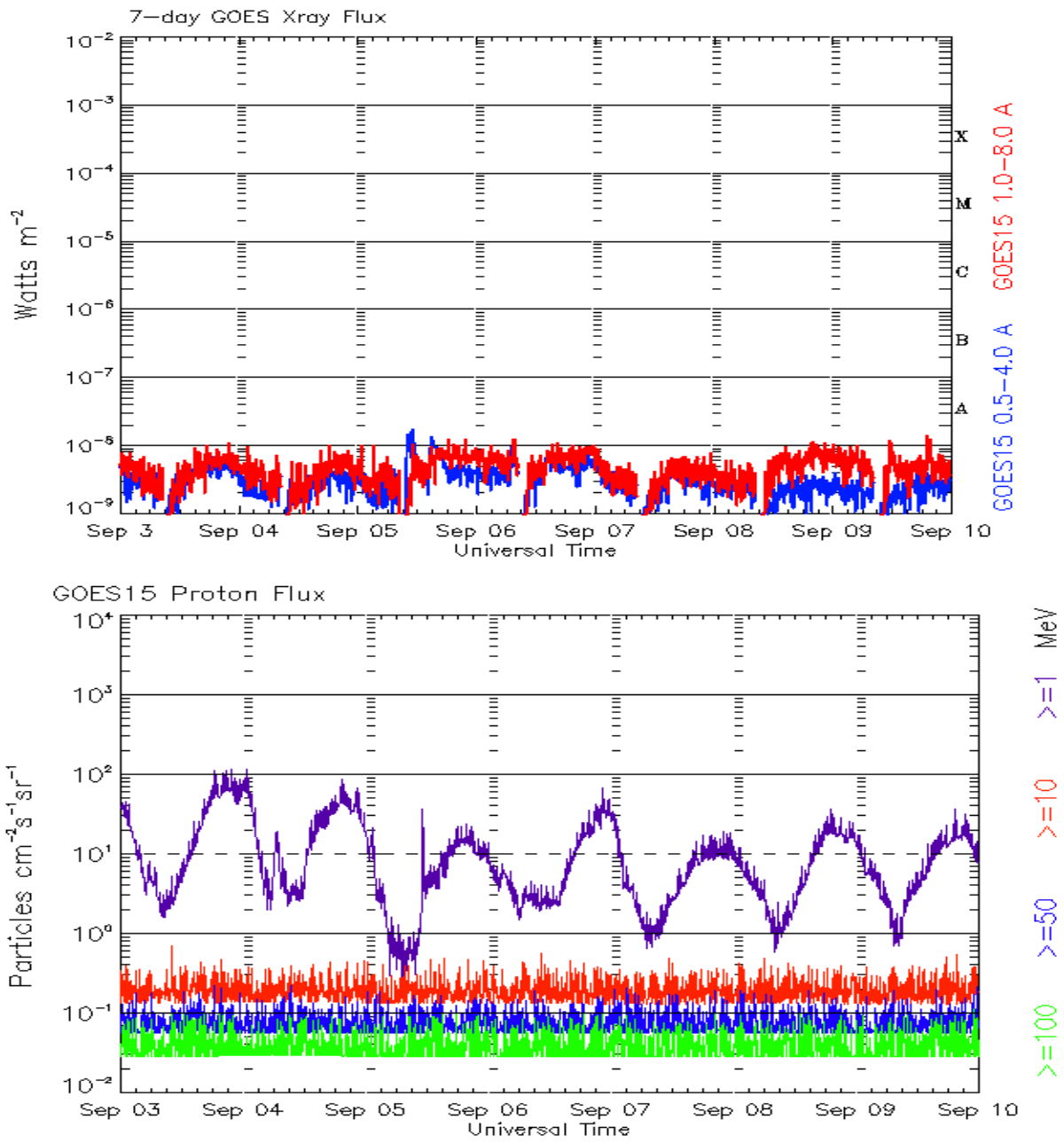
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm^2-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm^2-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

The Hp plot contains the five minute averaged Hp magnetic field component in nanoteslas (nT) as by the SWPC Primary GOES satellite. The Hp component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

The Estimated 3-hour Planetary Kp-index is derived at the NOAA Space Weather Prediction Center using data from the following ground-based magnetometers: Boulder, Colorado; Chambon la Foret, France; Fredericksburg, Virginia; Fresno, California; Hartland, UK; Newport, Washington; Sitka, Alaska. These data are made available thanks to the cooperative efforts between SWPC and data providers around the world, which currently includes the U.S. Geological Survey, the British Geological Survey, and the Institut de Physique du Globe de Paris.

The data included here are those now available in real time at the SWPC and are incomplete in that they do not include the full set of parameters and energy ranges known to cause satellite operating anomalies. The proton and electron fluxes and Kp are 'global' parameters that are applicable to a first order approximation over large areas. H parallel is subject to more localized phenomena and the measurements generally are applicable to within a few degrees of longitude of the measuring satellite.



Weekly GOES Satellite X-ray and Proton Plots
Week Beginning 03 September 2018

The x-ray plots contains five-minute averages x-ray flux (Watt/m^2) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

The proton plot contains the five-minute averaged intergral flux units (pfu = protons/cm^2 -sec -sr) as measured by the primary SWPC GOES Proton satellite for each of the energy thresholds: >1, >10, >30, and >100 MeV. The P10 event threshold is 10 pfu at greater than 10 MeV.

Preliminary Report and Forecast of Solar Geophysical Data (The Weekly)

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Notice: The 27-day Outlook, Satellite Environment, X-ray and Proton plots have been redesigned. Comments and suggestions are welcome SWPC.Webmaster@noaa.gov

The Weekly has been published continuously since 1951 and is available online since 1997.

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